N° 25,186 A.D. 1899

Date of Application, 19th Dec., 1899
Complete Specification Left, 20th Sept., 1900—Accepted, 19th Dec., 1900

PROVISIONAL SPECIFICATION.

Improvements in Apparatus Employed in Wireless Telegraphy.

We, Guglielmo Marconi, Electrician, and The Wireless Telegraph and Signal Company, Limited, both of 28, Mark Lane, in the City of London, do hereby declare the nature of this invention to be as follows:—

This invention relates to apparatus such as is described in the Specification No. 12326 of 1898 and No. 6982 of 1899 in which the aerial conductor is connected to a capacity through the primary of an induction coil whilst the receiver is connected to the secondary.

According to this invention the secondary of the induction coil is broken, preferably in the middle and the two ends are connected to the battery circuit in some cases through choking coils, the relay or translating device being in series with the battery. The other or outer ends of the secondary are connected directly to the detector or coherer.

It is desirable in certain cases to connect a condenser across the inner ends of the secondary.

Dated this 19th day of December 1899.

G. MARCONI.
THE WIRELESS TELEGRAPH AND SIGNAL COMPANY, LIMITED.
S. Flood Page,
Henry S. Sanna,
Directors.
Henry W. Allen,
Secretary.

COMPLETE SPECIFICATION.

Improvements in Apparatus Employed in Wireless Telegraphy.

We, Guglielmo Marconi, Electrician, and Marconi's Wireless Telegraph Company, Limited, (formerly known as The Wireless Telegraph and Signal Company, Limited,) both late of 28, Mark Lane, and now of 18, Finch Lane, Threadneedle Street, in the City of London, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

In the Specifications of former Patents No. 12326 of 1898 and No. 6982 of 1899

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is described a receiver in which the aerial conductor was connected to a capacity which might be the earth through the primary of an induction coil whilst the terminals of a detector of electrical oscillations for instance a coherer or other imperfect contact were connected to the secondary.

According to this invention this secondary is broken in the middle or wound in two parts, the inner ends of the wire being connected to the local battery circuit which usually includes a relay working an ordinary telegraphic receiving instrument while the outer ends are connected direct to the detector. It is advantageous also to place a condenser across the inner ends.

Figure 1 is a diagram of the apparatus arranged according to this invention, and Figures 2 and 3 show coils which have been found to work well.

In Figure 1 A is the aerial conductor connected to one end of the primary j^1 of an induction coil of which the other end is connected by E to a capacity which may conveniently be the earth. j^2 is the secondary of the induction coil wound in two parts, the outer ends being in connection with the terminals of a detector T while the inner ends are connected to the two plates of a condenser j^3. B is a battery and R a relay connected to the condenser j^3 and working an ordinary telegraphic instrument. c^1 c^2 are choking coils whose object is to prevent oscillations generated in the winding j^2 from running into the battery circuit which would weaken the effect of the oscillations on the detector T.

Figures 2 and 3 show instances of coils with which very good results have been obtained.

These diagrams are greatly enlarged half longitudinal sections, but are not strictly to scale. In place also of showing the section of each coil or layer of wire as a longitudinal row of dots or small circles as it would actually appear, it is for simplicity shown as a continuous longitudinal straight line.

The following are the details of the coil shown in Figure 2.

The primary j^1 wound on a core j ·6 cm. in diameter consists of 100 turns of copper wire ·037 cm. in diameter insulated with single silk and coated with paraffin wax; the secondary j^2 is of copper wire ·019 cm. in diameter insulated with single silk covering and is wound over the primary commencing in the middle and in the same sense as the primary. Each half of the secondary is in layers of the following number of turns: first layer 77, second 49, third 46, fourth 43, fifth 40, sixth 37, seventh 34, eighth 31, ninth 28, tenth 25, eleventh 22, twelfth 19, thirteenth 16, fourteenth 13, fifteenth 10, sixteenth 7, seventeenth 3, making 500 in all.

The following are the details of the coil shown in Figure 3.

The primary wound on a core 2·5 cms. in diameter consists of 50 turns of copper wire ·07 cm. in diameter insulated with single silk covering. The secondary is of copper wire ·005 cm. in diameter insulated by a single silk covering and is wound over and in the same sense as the primary. Each half of the secondary consists of 160 turns in a single layer.

These coils give the best results when the length of the aerial conductor at each station is 150 feet. When using coils in which the secondary winding consists of one layer only best results have been noticed when the length of the secondary winding is approximately equal to the length of the aerial conductor employed at the transmitting station.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed we declare that what we claim is:—

1. In a receiver for electrical oscillations, the combination of an induction coil the secondary of which is wound in two parts, an aerial conductor connected to one end of the primary, a capacity connected to the other end of the primary, a detector connected to the outer ends of the secondary, and a local circuit connected to the inner ends of the secondary.

2. In apparatus such as is referred to in Claim 1 placing a condenser across the inner ends of the secondary.

Dated this 12th day of September 1900.

GUGLIELMO MARCONI.
MARCONI'S WIRELESS TELEGRAPH Co., Ltd.,
S. Flood Page,
Henry S. Sanna,
Directors.
Henry W. Allen,
Secretary.

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ERRATUM.

SPECIFICATION No. 25,186 A.D. 1899.

In the Signatures appended to the Provisional and Complete Specification, *for* the name "HENRY S. SANNA" (as printed) *read* "HENRY S. SAUNDERS."

PATENT OFFICE,
21*st Jan.*, 1901.

A.D. 1899. Dec. 19. N.º 25,186.

MARCONI & *others'* COMPLETE SPECIFICATION. (1 SHEET)

Fig. 1.

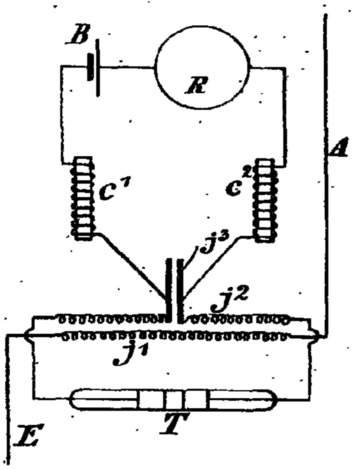


Fig. 2.

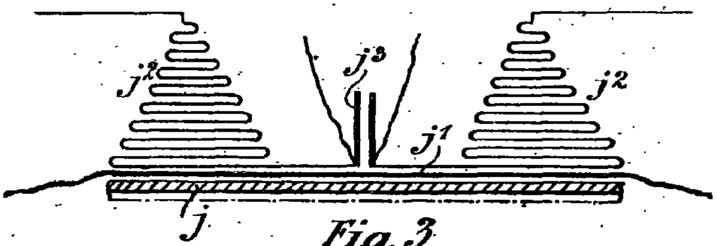
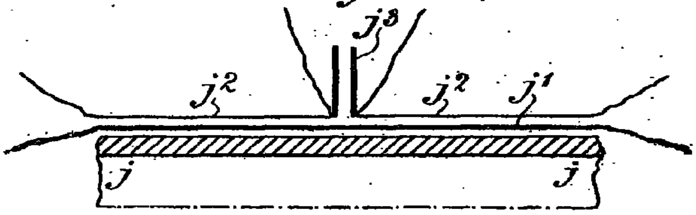


Fig. 3.



[This Drawing is a reproduction of the Original on a reduced scale.]

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